CLAIMS

We claim:

1. A method for specifically inhibiting a host immune response to target cell-specific antigens, comprising contacting a target cell expressing said antigen with an expression vector encoding a CD8 polypeptide comprising the CD8 α-chain, wherein said CD8 polypeptide is expressed by said target cell and whereby a host immune response against said target cell is specifically inhibited.

2. The method according to Claim 1, wherein said target cell-specific antigen is an alloantigen.

3. The method according to Claim 2, wherein said alloantigen comprises a donor alloantigen and said target cell comprises a donor allograft cell.

4. The method according to Claim 2, wherein said alloantigen comprises a recipient antigen and said target cell comprises a recipient cell.

5. A method for specifically inhibiting immune responses to donor antigens in a recipient, comprising conditioning donor allograft cells having said donor antigens to express a CD8 polypeptide comprising the CD8 α-chain prior to or contemporaneous with transplantation of said allograft cells into said recipient, wherein expression of said CD8 polypeptide by said allograft cells specifically inhibits the recipient alloimmune response to said donor antigens.

6. A method for extending the survival of an allograft in a recipient, comprising conditioning cells of said allograft to express a CD8 polypeptide comprising the CD8 α-chain prior to or contemporaneous with transplantation of said allograft into said recipient, wherein the CD8 polypeptide is expressed by said allograft cells and whereby the survival time of said allograft is extended.

7. The method according to Claim 5 or 6, wherein said conditioning step comprises contacting said allograft cells with an expression vector encoding said CD8 polypeptide.

8. The method according to Claim 5 or 6, wherein said conditioning step occurs *ex vivo* prior to or contemporaneous with transplantation of said allograft cells into said

recipient.

9. The method according to Claim 5 or 6, wherein said conditioning step occurs *in vivo* in the donor prior to or contemporaneous with harvesting of said allograft cells.

10. A method for specifically inhibiting immune responses to recipient antigens by transplanted donor T cells, comprising conditioning recipient cells at risk of graft versus host disease to express a CD8 polypeptide comprising the CD8 α-chain contemporaneous with or subsequent to transplantation of said donor T cells into said recipient, wherein expression of said CD8 polypeptide by said recipient cells specifically inhibits the donor alloimmune response to said recipient antigens.

11. A method for suppressing GVHD in a recipient, comprising conditioning cells of said recipient at risk for GVHD to express a CD8 polypeptide comprising the CD8 α-chain contemporaneous with or subsequent to transplantation of an allograft into said recipient, wherein the CD8 polypeptide is expressed by said recipient cells and whereby the GVHD immune response raised against the recipient cells by donor T cells in said allograft is suppressed.

12. The method according to Claim 10 or 11, wherein said conditioning step comprises contacting said allograft cells with an expression vector encoding said CD8 polypeptide.

13. The method according to Claim 10 or 11, wherein said conditioning step occurs *in vivo* in the recipient contemporaneous with or subsequent to transplantation of said donor T cells.

14. The method according to any one of Claims 1 to 13, wherein said CD8 polypeptide is a human CD8 polypeptide.

15. The method according to any one of Claims 1 to 14, wherein said CD8 polypeptide consists essentially of the extracellular domain of the CD8 α-chain and a transmembrane domain.

16. The method according to any one of Claims 1 to 14, wherein said CD8 polypeptide consists essentially of the Ig-like domain of the CD8 α-chain and a transmembrane domain.

17. The method according to Claim 15 or 16, wherein said transmembrane domain is the CD8 α-chain transmembrane domain.

18. An improved transplant allograft comprising allograft cells modified to express a CD8 polypeptide comprising the CD8 α-chain, wherein said allograft is capable of effectively and specifically inhibiting a recipient immune response to alloantigens .

19. The improved transplant allograft of Claim 18, wherein modification of said allograft cells is achieved using viral-mediated delivery of a nucleic acid encoding said CD8 polypeptide.

20. The improved transplant allograft according to Claims 18 or 19, wherein said CD8 polypeptide is a human CD8 polypeptide.

21. An improved organ preservation solution comprising a vector comprising a nucleic acid encoding a CD8 polypeptide, said CD8 polypeptide comprising a CD8 α-chain.

22. The improved organ preservation solution according to Claim 21, wherein said CD8 polypeptide is a human CD8 polypeptide.

23. The improved organ preservation solution according to Claim 21 or 22, wherein said CD8 polypeptide consists essentially of the extracellular domain of the CD8 α-chain and a transmembrane domain.

24. The improved organ preservation solution according to any one of Claims 21 to 23, wherein said transmembrane domain is the CD8 α-chain transmembrane domain.

25. The improved organ preservation solution according to Claim 21, wherein said nucleic acid encoding said CD8 polypeptide comprises the sequence set forth in SEQ ID NO:

26. The improved organ preservation solution according to Claim 21, wherein said CD8 polypeptide consists essentially of the sequence as set forth in SEQ ID NO: